

PROCEEDINGS
OF THE
SCIENTIFIC MEETINGS
OF THE
ZOOLOGICAL SOCIETY OF LONDON.

January 2, 1872.

John Gould, Esq., F.R.S., V.P., in the Chair.

The following extract was read from a letter addressed to the Viscount Walden, President of the Society, by Mr. T. G. F. Riedel, Assistant Resident, Gorontalo, Celebes, with reference to the true locality of *Tanysiptera riedeli*:—

“Having been informed of your intention of publishing a complete description of the birds of Celebes, and seeing that Mr. G. R. Gray, in his ‘Hand-list of Birds,’ has placed *Tanysiptera riedeli* as an inhabitant of this island, I think it right to mention to you that this bird, described by M. Jules Verreaux in the ‘Nouvelles Archives du Muséum d’Histoire Naturelle’ for 1866, is really from Kordo, an island in the Bay of Geelvink, and not from Celebes.”

Prof. Newton, F.R.S., exhibited and made remarks on a specimen of Ross’s Gull (*Larus rossi*) in winter plumage, from the collection of the late Sir William Milner, which was stated to have been killed in Yorkshire in 1847.

Mr. Gould, F.R.S., exhibited and made remarks on a specimen of the same bird in adult summer plumage, from the Derby collection at Liverpool.

The following papers were read :—

1. On the Quadrumana found in America north of Panama.
By P. L. SCLATER, M.A., Ph.D., F.R.S.

[Received December 5, 1871.]

(Plates I. & II.)

In the 'Natural History Review' for 1861*, I wrote an article upon "The Northern Limit of the Quadrumana in the New World," and showed that these animals range much further northwards than had been then recorded in scientific works. I likewise endeavoured to put together all that was then known of the distribution of the species of Monkeys met with in Central America north of Panama.

My attention has been again drawn to this subject by the receipt by this Society of living specimens of several species of Quadrumana from various parts of the Central-American isthmus, and by the publication of an article by Dr. v. Frantzius in a recent number of Wiegmann's 'Archiv,' upon the Mammals of Costa Rica†; and I am now able to give some additional information as to the actual species of Quadrumana which are met with north of Panama, and their range and localities‡.

* Page 507 *et seqq.*

† Wiegmann's Archiv f. Nat. 1869, pt. i. p. 247.

‡ Our authorities on the mammals of America north of Panama are very few and meagre. I am acquainted with the following only specially relating to this subject:—

a. MEXICO.

1. Wagler's "Einige Mittheilungen über Thiere Mexicos," in the 'Isis,' 1831, p. 510, which contains notices of four mammals, and the first description of *Bassaris astuta*.

2. M. H. de Saussure's articles on certain Mexican mammals in the Rev. et Mag. de Zool. for 1860 & 1861, with supplementary notices in 1865.

3. Von Müller's 'Reisen in Mexico,' Leipzig, 1864, which contains at the end of vol. iii. a list of Mexican vertebrates. It is, however, a mere compilation, full of egregious errors, and of no scientific value whatever.

b. GUATEMALA.

4. Mr. Tomes's Report on Mr. Salvin's collection of mammals made at Ducñas, in P. Z. S. 1861, p. 278. This contains an account of thirty-six species. Mr. Salvin subsequently made other collections of mammals in Guatemala, which were likewise entrusted to Mr. Tomes, but have never yet been reported upon.

c. COSTA RICA.

5. "Die Säugethiere Costarica's, ein Beitrag zur Kenntniss der geographischen Verbreitung der Säugethiere Amerika's," von Dr. A. von Frantzius (Wiegmann's Archiv, 1869, i. p. 248), contains notices of about sixty species, some of which are not exactly determined, and others, I have good reason to believe, not quite correctly named.

d. PANAMA.

6. List of Mammals and Birds collected by Mr. Bridges near David, by P. L. Sclater, contains references to five species.



J. G. Keulemans lith

NYCTIPITHECUS RUFIPES

M & H. Harhart imp



J. G. Keulemans lith

M & N Hand art imp

ATELES VELLEROSUS

These are, so far as I am yet acquainted with them, the following:—

1. *SAIMIRIS ENTOMOPHAGA* (D'Orb.); Is. Geoffr. Cat. Mann. p. 38.

Saimaris sciurea, Sclater, P. Z. S. 1856, p. 139.

Chrysothrix sciurea, v. Frantzius, Wieg. Arch. f. Nat. 1869, i. p. 260.

In 1856 I recorded the existence of a species of Squirrel Monkey in Central America, Mr. Bridges having procured, near David in Veragua, a skeleton of a species of this genus. Dr. v. Frantzius informs us that a *Saimaris* occurs in the warmer regions of Costa Rica, and refers the species to *S. sciurea*. But I have no doubt that the Central-American form is the black-headed *S. entomophaga*, as there is a skin of this species in the British Museum from Veragua (*Arcé*), and likewise a specimen of the same animal obtained by Capt. Kellett and Commander Wood during their survey of the Pacific coast of Central America.

2. *NYCTIPITHECUS LEMURINUS*, Is. Geoffr.

In a collection recently formed in the highlands of Costa Rica by Dr. van Patten is a skin of this *Nyctipithecus*, which agrees in every respect with a skin of the same animal from Bogota; so that this Columbian form evidently ranges thus far north.

3. *NYCTIPITHECUS RUFIPES*, sp. nov. (Plate I.)

On the 12th of June last we purchased a living specimen of a *Nyctipithecus*, which had been obtained at San Juan del Norte, Nicaragua. Not being able to examine this animal carefully whilst alive, I registered it as *N. lemurinus*, believing that that species was the most likely to occur so far north. It is since dead, and I now exhibit its skin and skull.

The animal is certainly *not N. lemurinus*, but belongs to the short-haired and cylindrical-tailed section of the genus containing *N. trivirgatus* and its allies *N. felinus* and *N. oseryi*. It appears, however, as might have been expected from its locality, to be distinct from all of these, and to belong to an undescribed species which I propose to call

NYCTIPITHECUS RUFIPES, sp. nov.

Supra cinereus, rufescente partim irroratus: subtus rufescenti-canus: tæniis verticis tribus indistincte nigris: manibus pedibus et caudæ dimidio basali rufis: hujus apice rufescenti-nigro: auribus prominentibus nudis: long. tota corp. 11, caudæ 16.

Hab. Nicaragua.

In the form of the stripes on the head this species seems to agree best with *N. trivirgatus*; but the long castaneous patch on the back of that species is wholly wanting in *N. rufipes*. Moreover the head-stripes are narrower and much less distinct, and leave a prominent triangular white patch over each eye. The rufous hands and feet

are also peculiar to the species. The ear-conchs are large and prominent, and in the present specimen nearly, if not quite, devoid of hairs. It is, however, possible that this may be partly due to the animal having been sick in captivity.

From *N. felinus*, of which I exhibit a fine Nattererian specimen, the present species is at once distinguishable by its much paler colour and by the indistinctness of the head-stripes.

I trust that we shall shortly receive further examples of this interesting animal, so that I may be enabled to give a more perfect account of its distinctive characters.

4. *CEBUS HYPOLEUCUS*, Geoffr.; Sclater, Nat. Hist. Rev. 1861, p. 509; v. Frantzius, Wieg. Arch. 1869, p. 259; Gray, Zool. Voy. Sulphur, p. 10.

The only *Cebus* of which I have seen Central-American specimens is *Cebus hypoleucus*, or the nearly allied form of it (if distinct) called by Dr. Gray *Cebus leucocephalus* (P. Z. S. 1865, p. 825). Of this there are specimens in the British Museum from Costa Rica and Nicaragua, collected in both localities by Arcé.

5. *ATELES MELANOCHIR*.

Ateles melanochir, Desm. Mamm. p. 76.

Ateles geoffroi, Kuhl.

Ateles melanochir, *A. ornatus* et *A. albifrons*, Gray, Cat. Monkeys, pp. 43, 44.

Ateles variegatus et *Eriodes frontatus*, v. Frantzius, Wieg. Arch. 1869, p. 258.

In some recent remarks on this species (P. Z. S. 1871, p. 226) I came to the conclusion that *A. ornatus* and *A. melanochir* were mere varieties of the same species. We have recently received more living examples of this Spider Monkey from Nicaragua. Amongst them is one nearly resembling the fine grey specimen formerly in General Fox's possession, upon which Dr. Gray has based his *A. albifrons*. This I now believe to be also merely a variety of *A. melanochir*, of the variations in colour of which Dr. v. Frantzius has already spoken (*l. s. c.* p. 257).

I have given the evidence as to the probable occurrence of this species in Southern Mexico in my article in the 'Nat. Hist. Review,' 1861, p. 509.

In Guatemala, Mr. Salvin tells me, this species is confined to the Pacific coast-region. A skin of Mr. Salvin's in the British Museum is of the variety called *A. ornatus* by Dr. Gray, which I have figured on a former occasion (P. Z. S. 1871, pl. xv.). Dr. v. Frantzius tells us that a specimen in the Basel Museum obtained in the same country by Dr. Bernouilli does not differ from Costa-Rican examples. There is also in the British Museum a skin of this Spider Monkey procured by Salvin's collector Arcé near Calovevora, in Veragua (belonging to the form *A. ornatus*); so that this species of *Ateles* appears to extend over Central America from Southern Mexico to Veragua.

We have at various times received at least a dozen living specimens of this Spider Monkey. Nearly all of these, so far as I have been able to ascertain, have been obtained by the West-Indian Mail Co.'s steamers at Greytown, Nicaragua.

6. ATELES VELLEROSUS. (Plate II.)

Mr. Salvin first informed me that a species of *Ateles* quite different from that of the Pacific coast-region occurs in the forests of Northern Vera Paz, where it is abundant in some localities. Mr. Salvin brought back from one of his expeditions a very imperfect skin of this animal, which is now in the British Museum.

Quite recently I have met with a skin of a Mexican Monkey, belonging to Mr. E. Gerrard, jun., which I have little doubt is of the same species. Mr. Gerrard obtained it from M. A. Boucard, along with other Mexican mammals, which M. Boucard believes were procured near Acapulco. I have taken this skin to the British Museum, and find it undoubtedly identical with the specimen upon which Dr. Gray founded his *Ateles vellerosus* (P. Z. S. 1865, p. 733, et Cat. Monkeys, p. 44). Mr. Salvin's Guatemalan skin appears to be rather more shortly haired, and is quite, or nearly altogether, black above, but must, I think, be referred to the same species.

Ateles vellerosus much resembles *A. belzebuth* in general colour, but has much longer hairs, particularly on the forehead and sides. The typical specimen of *A. vellerosus* is obviously young and small, but agrees otherwise perfectly with the Mexican skin before mentioned, which I now exhibit, and from which the accompanying figure (Plate II.) has been taken*. In my opinion two stuffed specimens in the British Museum, determined as *A. belzebuth* (one received from this Society in Dec. 1855, and the other purchased of Cross in 1843) should also be referred to *Ateles vellerosus*.

7. ATELES ATER, F. Cuv.

The Black-faced Spider Monkey appears to come up as far north as the vicinity of Panama; at least we have recently received several living specimens of this species by the West-Indian mail-steamer, which are said to have been obtained at Colon.

On the 11th of November last we obtained from Mr. J. B. Dawes, F.Z.S., a fine female example of this species, which, Mr. Dawes informs me, was procured at Colon †.

8. MYCETES VILLOSUS, Gray.

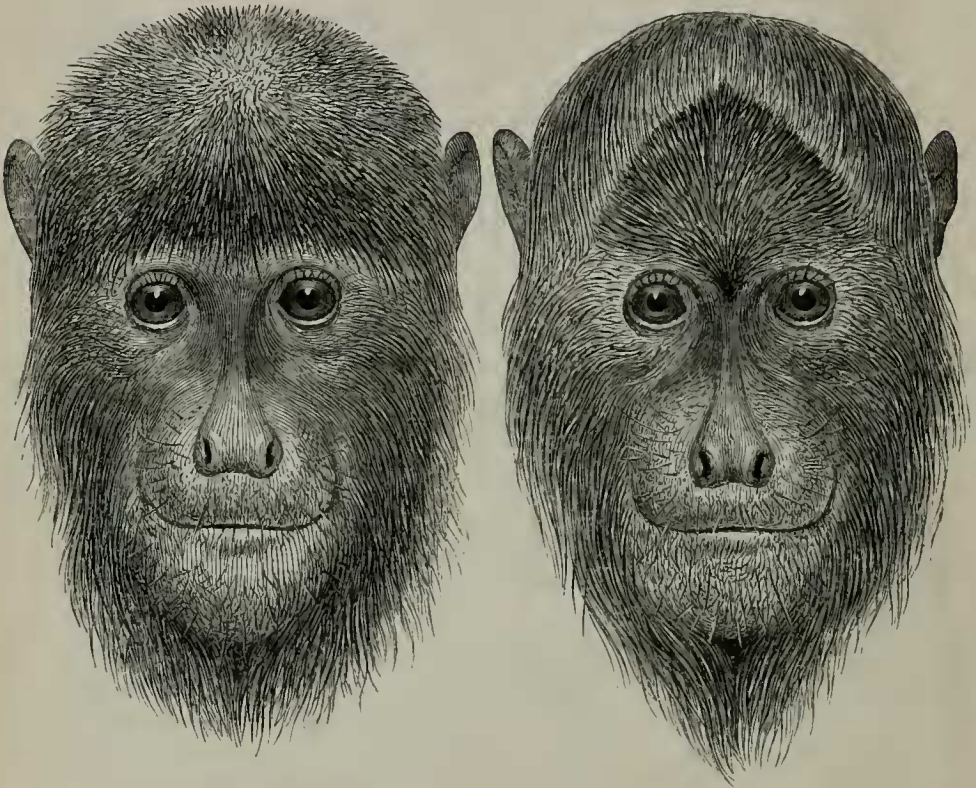
Mr. Salvin has often spoken to me of the Black Howler of Vera Cruz; but it is only recently that I have had an opportunity of ex-

* This specimen may be diagnosed as follows:—

Supra niger: dorso superiore brunnescente, inferiore cum lateribus fulvis: corpore subtus et artubus intus albis: pilis omnibus elongatis, in fronte reversis, in vertice projectis: long. corp. 16, caudæ 19.

† We have likewise received living specimens of *A. ater* from Cartagena; so that there is no question of the occurrence of this species in the northern part of the U.S. of Columbia.

aming a skin of this animal, obtained by him in that district in May 1862, which is now in the British Museum, where it has been named *Mycetes caraya*. As might have been expected, it is decidedly of a different species from the *M. caraya* of S. Brazil, Paraguay, and Bolivia, being the most northern species of the genus, while *Mycetes caraya* is the most southern. It differs from *M. caraya* in its long soft hairs, which below, towards their bases, show a rufescent tinge, in the hair on the face being inclined forward instead of reversed, as will be seen in the accompanying figures, and in the



Mycetes villosus.

Mycetes caraya.

colour of the female and young being black like that of the male. Other differences would be, no doubt, found on comparison, which, however, requires further materials for the purpose. But I have no doubt of the distinctness of the northern species; and I believed it to be undescribed, until I compared it with the single imperfect stuffed specimen in the British Museum upon which *Mycetes villosus*, Gray*, was founded. This is stated to be from "Brazil;" but I think it probable that there has been a mistake in the locality, and that it is identical with the Guatemalan animal.

* Ann. Nat. Hist. xvi. p. 220 (1845), and Cat. Monkeys, p. 41.

Mr. Salvin has furnished me with the following notes on this species, as observed by himself in Guatemala:—

“The *Mycetes* of Guatemala is commonly known as the ‘Mono.’ It is abundant throughout the virgin forests of the eastern portion of the republic, but is unknown in the forest-clad slopes which stretch towards the Pacific Ocean. In the former region it is found at various altitudes over a wide expanse of country. I have heard its cry on the shores of the lake of Yzabal; and all through the denser forests of the valley of the river Polochic it is very common, from the steep mountain-road which lies between the upland village of Purulá and S. Miguel-Tucuru, and especially in the wilderness of uninhabited forest which stretches from Telemán to the lake of Yzabal. In the unbroken forest-country, which occupies the whole of the northern portion of Vera Paz from Cobán and Cahabón to the confines of Peten, it is also abundant; for seldom an hour passes but the discordant cry of the Mono strikes upon the ear of the traveller as he threads the lonely path to Peten. The elevation of this district varies from about 700 to 3000 feet; and the *Mycetes* is found at all heights. When travelling through this forest in 1862 I was dependent for the animal food to supply my party of Indians entirely upon my gun; and Monos contributed not a little to the larder. The Indians eat Monkey without demur; but the meat looks dark and untempting. For my own part I far preferred the delicate Tinamou or Curassow, a sufficient supply of which never failed for my own consumption. Perhaps there is no district in Vera Paz where ‘Monos’ are more abundant than the mountains of Chilasco, a cold and damp region, elevated at least 6000 feet above the sea, but where the forest-growth is of the densest description and trees of the largest size abound. It was here that the specimens were obtained that are now in the British Museum. The wonderful cry whence *Mycetes* gets its trivial name of Howling Monkey is certainly most striking; and I have sometimes endeavoured to ascertain how far this cry may be heard. It has taken me an hour or more to thread the forest-undergrowth from the time the cry first struck my ear to when, guided by the cry alone, I stood under the tree where the animals were. It would certainly not be overestimating the distance to say two miles. When the sound came over the lake of Yzabal unhindered by trees, a league would be more like the distance at which the Mono’s cry may be heard. These animals are found in small companies of five or six. They are usually met with in the upper branches of the highest trees, and, when disturbed, crawl sluggishly along the boughs. The young, as well as the females, are of the same dense black as the old males, but the hair is shorter and not so glossy.”

9. *MYCETES PALLIATUS*, Gray, P. Z. S. 1848, p. 138, pl. 6; v. Frantzius, Wieg. Arch. 1869, i. p. 254.

This *Mycetes* was originally described from examples procured by M. Sallé (as he has himself told me) in Nicaragua, where the animal is found in the islands and on the banks of the lake of Nicaragua.

Dr. v. Frantzius met with it in Costa Rica, and describes it as being there of a blacker colour than in Nicaragua. It is possible, therefore, that the Costa-Rican form may be intermediate between this species and the last.

Mr. Salvin's collector Arcé obtained specimens of this species in Costa Rica, which are now in the British Museum.

10. MIDAS GEOFFROI.

Hapale geoffroi, Puch. Rev. Zool. 1845, p. 336.

Midas geoffroi, Is. Geoffr. Cat. p. 63; Sclater, P. Z. S. 1871, p. 478, pl. 38.

I have recently recorded the receipt by the Society of a living example of this species from Colon; and since that date other specimens have been received from the same port—namely, two on the 2nd of September, and one on the 12th. The specimens of *Hapale œdipus* referred to by me (N. H. R. 1861, p. 509) as “said to have been obtained in Chiriqui,” were probably of this nearly allied species.

No other member of the family Hapalidæ, so far as I know, is found so far north as Panama. In the ‘Annals and Magazine of Natural History’ for 1843 (vol. x. p. 398) Dr. Gray has described *Iacchus rufiventer* as coming from Mexico. This, however, is an error, as the species is Amazonian, and was obtained by Natterer* and Herndon† in the Amazonian district.

Of the two subjoined tables the first shows which of the genera of S. American Monkeys are found in Central America, and how far north they advance according to our present information. The second shows the range of the previously mentioned ten species.

TABLE I.

	Panama and Veragua.	Costa Rica.	Nicaragua.	Guatemala.	S. Mexico.
I. CEBIDÆ.					
1. Saimiris					
2. Nyctipithecus					
3. Callithrix					
4. Cebus					
5. Ateles					
6. Brachyteles					
7. Mycetes					
8. Pithecia					
9. Brachyurus					
II. HAPALIDÆ.					
10. Hapale					
11. Midas					

* See Reichenbach's ‘Affen,’ p. 14, where this species is described as *Midas erythrogaster*.

† Cf. Slack, Pr. Acad. Phil. 1861, p. 463, where this species is described as *Midas elegantulus*.



Sowerby del.

J. V. Bequaere sculp.

NEW SPECIES OF SHELLS FROM THE RED SEA & OTHER LOCALITIES

TABLE II.

	Panama and Veragua.	Costa Rica.	Nicaragua.	Guatemala.	S. Mexico.
1. <i>Saimiris entomophaga</i>					
2. <i>Nyctipithecus lemuringus</i>					
3. — <i>rufipes</i>					
4. <i>Cebus hypoleucus</i>					
5. <i>Ateles melanochir</i>					
6. — <i>vellerosus</i>					
7. — <i>ater</i>					
8. <i>Mycetes villosus</i>					
9. — <i>palliatus</i>					
10. <i>Midas geoffroyi</i>					

2. Further Descriptions of new Species of Shells collected by Robert M'Andrew, Esq., in the Red Sea. By HENRY ADAMS, F.L.S.

[Received November 27, 1871.]

(Plate III.)

TURRICULA (COSTELLARIA) PHARAONIS, sp. nov. (Plate III. fig. 1.)

T. testa solida, fusiformi, plicis obtusis longitudinalibus 9-10 et costis numerosis confertis, anterioribus validioribus, sculpta, purpureo-alba; spira turrata; anfr. 9, convexis, postice tabulatis, ultimo antice sensim attenuato; apertura angusta; columella 4-plicata, sinu siphonali brevi, vix recurvo; labro acuto, sulcato; fauce violacea.

Long. 23, diam. 10 mill.

TURRICULA (THALA) CASTA, sp. nov. (Plate III. fig. 2.)

T. testa tenuiuscula, elongato-fusiformi, plicis arcuatis longitudinalibus, interstitiis transverse striatis sculpta, alba; spira elongata; anfr. 10, vix convexis, postice subnodosis, ultimo antice subito attenuato; columella 3-plicata, sinu siphonali paulum producto et recurvo; labro acuto, simplici.

Long. 8½, diam. 3 mill.

TURRITELLA ALBA, sp. nov. (Plate III. fig. 3.)

T. testa turrata, tenui, alba; anfr. 12, superne carinatis, filis confertis, quorum uno carinam formante et altero intervallo inferiore

validioribus, cinctis; anfractu ultimo basi paulum concavo; apertura subquadrata.

Long. 14, diam. $3\frac{1}{2}$ mill.

Apparently a young shell; but I know of no species to which it can be referred.

AMHIPERAS OVOIDEUS, sp. nov. (Plate III. fig. 4.)

A. testa solida, ovato-globosa, dorso subangulata, striis longitudinalibus et lineis tenuissimis confertis sculpta, pallide fulvo-carnea; apertura angusta; labio antice excavato, plica obtusa mediocri ad extremitatem munito; labro varicoso, interne sulcato, albedo, postice producto, canalem obliquum contortum formante, antice canalem brevem desinente.

Long. 13, diam. 9 mill.

STOMATELLA SCITULA, sp. nov. (Plate III. fig. 5.)

S. testa auriformi, tenui, costulis inæqualibus numerosis cincta, albidâ; spira prominente, sutura distincta; anfr. 4, convexis; apertura valde obliqua, subovali; columella acuta, revoluta; intus margaritacea.

Long. 7, diam. 5, alt. $3\frac{1}{2}$ mill.

CEMORIA NANA, sp. nov. (Plate III. fig. 6.)

C. testa solidula, elevato-conica; costis ad 15 radiantibus, anterioribus distantioribus, sculpta; apice acuto, valde adunco; apertura ovali.

Long. 2, lat. $1\frac{1}{4}$, alt. 2 mill.

EMARGINULA RUGOSA, sp. nov. (Plate III. fig. 7.)

E. testa solida, quadrato-elliptica, elevata, costis rugosis radiantibus et costulis excentricis distantibus clathrata, albidâ; apice vix centrali, acutiusculo, vix recurvo; intus albidâ; margine expanso, inæqualiter late crenato; incisura lata, modice profunda, intus in canalem haud ad verticem producta.

Long. 19, lat. 13, alt. 6 mill.

EMARGINULA MODESTA, sp. nov. (Plate III. fig. 8.)

E. testa solidula, ovali, subdepressa, pallide rufo-fulva, costis numerosis, subelevatis, radiantibus, subimbricatis (antice tribus majoribus, quorum centrali prominentiore) et lineis irregularibus concentricis sculpta; apice submediano, recurvo; margine crenulato; incisura lata, brevi, intus in canalem producta.

Long. 7, lat. 4, alt. $2\frac{1}{2}$ mill.

CADULUS MINUTUS, sp. nov. (Plate III. fig. 9.)

C. testa lavi, tenui, arcuata, antice paulum contracta, albidâ; apertura circulari, vix obliqua.

Long. 4, diam. $\frac{3}{4}$ mill.

CYLICHNA MINUTA, sp. nov. (Plate III. fig. 10.)

C. testa cylindræa, tenui, lævigata, subpellucida; apertura lineari, antice dilatata; columella brevi, simplici; labro postice paulum producto, margine arcuato.

Long. $1\frac{1}{2}$, lat. $\frac{1}{2}$ mill.

PHYLINÆ ERYTHRÆA, sp. nov. (Plate III. fig. 11; fig. 11 a, gizzard.)

P. testa subquadrato-ovali, tenui, semipellucida, lineis transversis distantibus insculpta; apertura ampla, antice dilatata; margine columellari tenui; labro postice rotundato, margine arcuato.

Long. 8, lat. 6 mill.

The gizzard of this species has the plates deeply serrated on the edges.

TORNATINA INCONSPICUA, sp. nov. (Plate III. fig. 12.)

T. testa elongato-ovoidea, solidiuscula, antice transversim tenuissime striata, albida; spira paulum exserta; apertura angusta, in medio coarctata, antice dilatata; columella plica minuta instructa; labro margine arcuato.

Long. 3, lat. $1\frac{1}{2}$ mill.

ATYS (ALICULA) ISSELI, sp. nov. (Plate III. fig. 13.)

A. testa subcylindræa, tenui, minutissime spiraliter striata, striis antice validioribus et distantioribus, albida, strigis subpellucidis sinuatis ornata; anfractu ultimo antice rotundato, subattenuato; apertura angusta; columella brevi, callosa; labro recto, arcuato, postice paulum producto.

Long. 6, lat. 3 mill.

RINGICULA MINUTA, sp. nov. (Plate III. fig. 14.)

R. testa solida, acuminato-ovata, sulcis transversis distantibus sculpta, alba; spira acuminata; anfr. 4, convexiusculis, ultimo amplo; apertura auriculata; labio modice calloso, plicis duobus munito; dente parietali conspicuo, tenui; labro incrassato, intus 1-denticulato.

Long. $1\frac{1}{2}$, diam. $\frac{3}{4}$ mill.

SCAPHARCA PYGMÆA, sp. nov. (Plate III. fig. 15.)

S. testa transversa, ovali, ventricosa, costis radiantibus 24 utrinque majoribus, et lineis distantibus concentricis cancellata, alba, epidermide tenui fusca induta; lateribus rotundatis, superne angulatis; margine ventrali arcuato; umbonibus submedianis, in medio obscure radiatim sulcatis; area cardinali mediocri.

Long. 12, alt. 7, lat. 6 mill.

ANOMALOCARDIA TRANSVERSALIS, sp. nov. (Plate III. fig. 16.)

A. testa transversa, valde inæquilaterali, subrhomboidali, costulis numerosis radiantibus, subsquamosis, posticis majoribus, sculpta, alba; extremitate antica arcuata, cum margine dorsali angulum

rectum formante; extremitate postica lata, superne obliqua, recta, cum margine dorsali angulum obtusum formante; umbonibus ante-medianis, obtusis, paulum elevatis; area cardinali angusta.

Long. 14, alt. 9, lat. 5 mill.

3. Descriptions of fourteen new Species of Land and Marine Shells. By HENRY ADAMS, F.L.S.

[Received November 27, 1871.]

(Plate III.)

LEPTOCOONUS (PHASMOCONUS) DU SAVELI, sp. nov. (Plate III. fig. 17.)

L. testa convexo-conica, polita, solidiuscula, antice distanter puncto-lirata, roseo-lutea, fasciis tribus ex striis longitudinalibus et maculis rufis formatis ornata, seriebus numerosis macularum candidarum purpureo-lividarum alternantium cincta; spira acuminata, conica, apice mucronato; sutura distincta, sursum subcanaliculata, longitudinaliter rufo-striata; anfr. $10\frac{1}{2}$, superne angulatis, ad apicem nodulosus, anfractu ultimo paulum ventricosus; apertura mediocri, antice subdilatata; labro acuto, postice sinuato.

Long. 50, lat. 20 mill.

Hab. Mauritius (*coll. Du Savel*).

This beautiful species, at present unique, is stated to have been obtained from the stomach of a fish, but is in a good state of preservation. It appears to belong to the group *Phasmoconus*, Mörch, as regards the surface, texture, and style of painting, but has, nevertheless, somewhat the aspect of the genus *Nubecula*.

STYLODONTA (EREPTA) BEWSHERI, sp. nov. (Plate III. fig. 18)

S. testa imperforata, depresso-conica, solidula, plicis acutis, obliquis, undulatis munita, pallide rufo-fulva; spira breviter elevata, apice obtuso, sutura marginata, valde impressa; anfr. 6, convexis, lente accrescentibus, ultimo non descendente, ad peripheriam acute carinato, carina compressa, serrata, subtus convexo, medio excavato; apertura obliqua, angulato-lunari; perist. simplici, marginibus remotis, dextro sinuato, obtuso, basali arcuato, calloso.

Diam. maj. 14, min. 13, alt. 18 mill.

Hab. Basin du Diable, near St. Denis, Isle of Bourbon (*coll. Caldwell*).

I have named this species after Mr. E. C. Bewsher of Port Louis, Mauritius, who discovered it in the locality above mentioned, which is elevated 1000 feet above the level of the sea. It is closely allied to *S. semicerina*, Morel., but differs in being imperforate, in the plication of the surface being stronger and more acute (thus causing the keel, which is very compressed, to be serrated), by the whorls being more convex, and by its uniform light reddish-brown colour.

CYLINDRELLA (HOLOSPIRA) GEALEI, sp. nov. (Plate III. fig. 19.)

C. testa minute perforata, cylindracea, solida, oblique striata, al-bida; spira oblonga, apice conico, acutiusculo, flavido; anfr. 12-13, planiusculis, superne subangulatis, ultimo paulum ascendente, antrorsum breviter soluto; apertura angulato-circulari; perist. continuo, undique expanso et reflexiusculo.

Long. 15, diam. $5\frac{1}{2}$ mill.

Hab. Putla, Oaxaca, Mexico (*coll. H. Ad.*).

CYLINDRELLA (UROCOPTIS) DECURTATA, sp. nov. (Plate III. fig. 20.)

C. testa arcuato-rimata, subcylindracea, truncata, tenuiuscula, leviter oblique plicata, pallide rufo-fulva; sutura impressa; anfr. superst. 6-7, subplanulatis, superne paulum angulatis, ultimo antice breviter soluto, non descendente, dorso et basi levissime filocarinato; apertura parum obliqua, subcirculari; perist. breviter expanso et reflexiusculo, albido.

Long. 28-29, diam. 10 mill.; ap. diam. 6 mill.

Hab. Putla, Oaxaca, Mexico (*coll. H. Ad.*).

PUPINOPSIS MORRISONIA, sp. nov. (Plate III. fig. 21.)

P. testa rimata, pupæformi, solida, oblique capillaceo-striata, pallide fulva; spira oblongo-conica, apice acutiusculo, sutura impressa; anfr. $7\frac{1}{2}$, convexiusculis, ultimo basi juxta rimam cristato; apertura verticali, circulari, bicanaliculata; perist. duplici, interno obtuso, porrecto, sinum superiorem circumveniente, externo expanso, reflexo, superne cum interno conjuncto, canalem basalem callo circumvallente.

Long. 12, diam. 5 mill.

Hab. Mount Morrison, Formosa (*Mr. Swinhoe*).

DIPLOMMATINA CONCINNA, sp. nov. (Plate III. fig. 22.)

D. testa dextrorsa, non rimata, ovato-fusififormi, tenui, costulis tenuibus distantibus sculpta, pallide cornea; spira subconica, apice obtuso, sutura impressa; anfr. 6, convexis, antepenultimo paulum tumidiore, ultimo ascendente; apertura subverticali, rotundolunari, plica columellari valida, conspicua; perist. duplici, interno vix elevato, externo expanso, subreflexo, angulo subtus producto, margine columellari sinuato, angulo subtus desinente; callo parietali tenui, mediocriter expanso.

Long. 3, diam. $1\frac{1}{2}$ mill.

Hab. Borneo (*coll. H. Ad.*).

RAETA GRAYI, sp. nov. (Plate III. fig. 23.)

R. testa tenni, fragili, ovato-trigonalis, ventricosa, postice hiante, concentricè plicata, candida; umbonibus submedianis; latere antico rotundato; latere postico angustato, compresso, subtruncato; margine dorsuli antice arcuato, postice subrecto.

Long. 35, alt. 28, lat. 20 mill.

Hab. Borneo (*coll. H. Ad.*).

SCAPHULA BENSONI, sp. nov. (Plate III. fig. 24.)

S. testa tenuiuscula, rhomboidali, striis rugosis concentricis sculpta, sub epidermide olivaceo-fusca albida; umbonibus subterminalibus; extremitate antica brevi, acuminata; extremitate postica subtruncata; margine dorsali recto; margine ventrali sinuato, dorsali fere parallelo; fastigio umbonali valde elevato, acuto; intus cærulescente.

Long. 10, alt. 3, lat. 5 mill.

Hab. —? (coll. H. Ad.).

This is the fourth species of the genus known. The others are from India; but the exact locality from which this was obtained I was unable to ascertain.

CLATHURELLA RUBRO-GUTTATA, sp. nov. (Plate III. fig. 25.)

C. testa fusiformi, tenui, plicis longitudinalibus ad 12 et liris transversis eminentibus clathrata, nivea, seriebus duabus macularum sanguinearum ornata; spira acuta, sutura distincta; anfr. 8, convexis; apertura anguste lunata, $\frac{3}{8}$ totius longitudinis; columella flexuosa; labro tenui, intus lævi, margine dentato, sinu minime profundo; canali brevi, lato.

Long. 8, diam. $3\frac{1}{2}$ mill.

Hab. New Hebrides (coll. Hargraves).

CLATHURELLA PULCHERRIMA, sp. nov. (Plate III. fig. 26.)

C. testa ovato-fusiformi, solida, plicis obtusis confertis, et costis validis tribus, elevatis, transversis, intervallis filo-costatis, clathrata, alba; spira breviter turrata, apice subplano, sutura profunda; anfr. 4, convexis, ultimo subventricoso; apertura acuminato-ovali, dimidium totius longitudinis; columella flexuosa; labro vix expanso, paulum incrassato, crenulato, intus lævi, sinu lato, brevissimo; canali angusto, producto, recurvo.

Long. 7, diam. 4 mill.

Hab. New Hebrides (coll. Hargraves).

ZAFRA PUPOIDEA, sp. nov. (Plate III. fig. 27.)

Z. testa elongato-ovoidea, solida, plicis numerosis, obtusis, validis, longitudinalibus sculpta, albida, infra peripheriam fascia fusca ornata, ad basin fusco tincta; spira convexo-conica, sutura impressa; anfr. 6, planiusculis, ultimo attenuato; apertura angusto-ovali; columella arcuata, callosa; labro subacuto, sinu lato, brevi.

Long. 7, diam. 3 mill.

Hab. New Hebrides (coll. Hargraves).

The genus *Zafra*, formed by my brother to receive the small shells of which this is an additional species, has been subsequently named *Seminella* by Mr. Pease. It belongs to the family *Turridæ*.

NASSA EXIMIA, sp. nov. (Plate III. fig. 28.)

N. testa ovato-conica, tenui, nitida, costulis confertis ubique cancellata, flavida, fasciis tribus pallide fulvis ornata; spira conica,

sutura profunda; anfr. 6, convexis, apicalibus levibus; columella arcuata, callosa, postice callo erecto instructa; apertura subovali; labro intus sulcato, extus valde incrassato; fauce fulva.

Long. 8, diam. 4 mill.

Hab. New Hebrides (*coll. Hargraves*).

EULIMA PORCELLANA, sp. nov. (Plate III. fig. 29.)

E. testa subulata, solida, politissima, eburnea; spira acuminata, sursum subattenuata, sutura leviter impressa; anfr. 12, subplanatis, ultimo basi rotundato; apertura acuminato-ovali; columella arcuata, collosa; labro sinuato.

Long. 14, diam. 4 mill.

Hab. New Hebrides (*coll. Hargraves*).

OXYNOË HARGRAVESI, sp. nov. (Plate III. fig. 30.)

O. testa tenuissima, subpellucida, ovoidea, postice producta, involuta, alba, strigis opacibus longitudinalibus, lineis incrementi sequentibus ornata; apertura ampla, antice rotundata, postice angustata; labio tenui, vix reflexo; labro acuto, superne inflexo.

Long. 7, diam. $4\frac{1}{2}$ mill.

Hab. New Hebrides (*coll. Hargraves*).

DESCRIPTION OF PLATE III.

- Fig. 1. *Turricula (Costellaria) pharaonis*, p. 9.
2. — (*Thala*) *casta*, p. 9.
3. *Turritella alba*, p. 9.
4. *Amphiperas ovoideus*, p. 10.
5. *Stomatella scitula*, p. 10.
6. *Cemoria nana*, p. 10.
7. *Emarginula rugosa*, p. 10.
8. — *modesta*, p. 10.
9. *Cadulus minutus*, p. 10.
10. *Cylichna minuta*, p. 11.
11. *Phyline erythræa*; fig. 11 a, gizzard: p. 11.
12. *Tornatina inconspicua*, p. 11.
13. *Alys (Alicula) isseli*, p. 11.
14. *Ringicula minuta*, p. 11.
15. *Scapharca pygmæa*, p. 11.
16. *Anomalocardia transversalis*, p. 11.
17. *Leptoconus (Phasmoconus) du saveli*, p. 12.
18. *Stylodonta (Erepta) bewsheri*, p. 12.
19. *Cylindrella (Holospira) gealei*, p. 13.
20. — (*Urocoptis*) *decurtata*, p. 13.
21. *Pupinopsis morrisonia*, p. 13.
22. *Diplommatina concinna*, p. 13.
23. *Raeta grayi*, p. 13.
24. *Scaphula bensoni*, p. 14.
25. *Clathurella rubro-guttata*, p. 14.
26. — *pulcherrima*, p. 14.
27. *Zafra pupoidea*, p. 14.
28. *Nassa eximia*, p. 14.
29. *Eulima porcellana*, p. 15.
30. *Oxynoë hargravesi*, p. 15.

4. On the Œsophagus of the Pied Hornbill (*Toccos melanoleucus*): being an Appendix to a paper on the Taxonomic Character of the Muscular Sheath of that Tube as regards Sauropsida*. By GEORGE GULLIVER, F.R.S.

[Received December 2, 1871.]

Through the courtesy of Mr. Sclater I have had an opportunity of examining the viscera of the Pied Hornbill (*Toccos melanoleucus*) that died in the Society's Menagerie on the 23rd of November, 1871. It was a male bird; and the cause of its death was tubercular peritonitis—that scourge of the Vertebrates in the Society's Gardens.

In the memoir cited above it was shown that Birds and Reptiles may, by the single character of the want of a sheath of transversely striated muscular fibre on the œsophagus, be sharply defined from Mammals and Fishes, in which last two classes more or less of the length of the œsophageal sheath is, on the contrary, regularly composed of muscular fibre that is transversely striated.

But it remains for inquiry whether exceptions may not be found to this rule. And these, were we to judge from function of structure, might be confidently expected in Birds; for in this class we find numberless instances of a voluntary and habitual regurgitation or ejection of matters from the upper part of the alimentary canal. And yet in none of these cases has the œsophagus or stomach been found with an investment of that striated fibre which belongs to the voluntary muscles of the skeleton of the species. If, therefore, either of these parts of the alimentary canal be the active agent in such regurgitation or ejection, the voluntary muscles of that part must be of the smooth kind, as, indeed, they are well known to be throughout the frame in several classes of Invertebrates.

Among Mammals, the Ruminants have been proved to possess an œsophageal sheath of striated muscle, as was expected in these animals; and it has accordingly been described as if characteristic of this order. Thus the Ruminants are the only Mammals in which this kind of muscular fibre has been noticed by the author of the 'Comparative Anatomy of Vertebrates' as belonging to the œsophageal sheath. "The œsophagus is frequently concerned in regurgitation; and in the Birds in which this phenomenon occurs the muscular coat of the gullet, like that in Ruminants, is well developed" (vol. ii. p. 158). "In true or ordinary Ruminants the muscular fibres of the œsophagus are disposed in two layers of spirals, taking reverse directions, which decussate at one or other of two opposite longitudinal lines; the outer layer contains more muscular and less cellular tissue than the inner one; the fibres of both are of the striated kind; and, as is usual when such are in more habitual and energetic action, they are of a redder colour than in non-ruminating Mammals" (vol. iii. p. 470).

* See P. Z. S. 1870, p. 283.

Hence it seems interesting to examine the œsophagus of the birds alluded to above; and I have in former memoirs shown that the Owls and Hawks, like other birds, are devoid of an œsophageal sheath of transversely striated muscular fibre. But the remarkable power possessed by the Hornbills, of ejecting matters through the œsophagus upwards, suggests the necessity of extending the examination to these birds especially. And this I have done, so far as regards the species mentioned at the head of this paper.

The sheath of the œsophagus was thin, of a reddish colour, and composed of fibres almost if not completely arranged transversely, as is usual in birds. These fibres appeared in bands or fascicles, each about $\frac{1}{250}$ th of an inch thick, and made up of smooth fibrils closely connected together, each about $\frac{1}{4000}$ th of an inch in diameter, and the whole of them so thickly studded with nuclei as to make the fibres appear speckled when examined under an achromatic object-glass of one tenth of an inch focal length. Not even a single transversely striated fibre or fibril could be found on the œsophagus lower than the termination of the pharyngeal muscles.

In short, there was no transversely striated muscular fibre on the true œsophagus; and thus this bird affords no exception to the rule of a want of this kind of muscle on the œsophagus of the class. And hence, so far as is at present known, Mammals and Fishes might be truly defined as Vertebrates with transversely striated muscular fibre on the œsophagus, and Birds and Reptiles as Vertebrates devoid of a transversely striated œsophageal muscular sheath. How the differences in the extent of this fibre along the œsophagus afford good taxonomic characters in the Mammalian class has been explained in my papers published in the 'Proceedings' of the Zoological Society, June 14, 1842, April 22, 1869, and May 12, 1870.

The colour of the muscles of animals is often, but by no means always, correlated with their energetic action. Neither is the colour regularly indicative of the intensity of the transverse markings in animals generally, nor is it redder in the œsophagus of Ruminants particularly than in many other Mammals. In Insects of the most active habits, and in numerous energetic Fishes and Lizards, the muscles are pale, and yet more forcibly marked with transverse stripes than the deeply coloured muscles of many Birds and Mammals, as is well known of the Skate and Man to teachers of histology. Leydig, indeed, maintains that this distinctness or largeness of the striæ is related to the activity of the muscles, and adduces Insects as exemplifications of his opinion. But the muscles of many sluggish Caterpillars and of some other equally tardy Arthropoda are quite as plainly striated. In several birds, as the common Swift (*Cypselus apus*), the transverse striæ of the fibres of the wonderfully active pectoral muscles are much less distinct than in the comparatively idle muscles of the legs (Proc. Zool. Soc. June 14, 1842). Though in Ruminants the transversely striated muscle of the œsophageal sheath extends to the stomach, there is a large proportion of smooth muscular fibre on the last inch or two of the œsophagus. And in many other Mammalia, as, *e. g.*, certain Bears and Rodents, the